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10/060,148	02/01/2002	Yoshiyuki Ishii	Q67564	9744

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EXAMINER
YAM, STEPHEN K

ART UNIT	PAPER NUMBER
2878	

DATE MAILED: 07/30/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/060,148	ISHII ET AL.	
	Examiner	Art Unit	
	Stephen Yam	2878	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 April 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

This action is in response to Amendments and remarks filed on April 30, 2003. Claims 1-17 are currently pending.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 2, 5, 7, 10, 11, 13, and 15-17 are rejected under 35 U.S.C. 102(e) as being anticipated by Halter US Patent No. 6,323,954.

Regarding Claim 1, Halter teaches (see Fig. 8) an apparatus for detecting a light-transmissive sheet-like body (G) comprising a light source unit (12) for emitting illuminating light, a reflector (R) for reflecting the illuminating light, light detecting means (11.1, 11.2, 11.3) for detecting the illuminating light which is reflected by said reflector, and a converging optical system (13.1, 13.2, 13.3) for leading the illuminating light reflected by said reflector to said light detecting means, wherein an edge (K) of the light-transmissive sheet-like body placed between the converging optical system and the reflector is detected based on a difference between two types of information, including information of said illuminating light which is led to said light detecting means through said edge and another information of said illuminating light which bypasses said edge and is led to said light detecting means (see Fig. 3, (13.1) vs. (13.3)).

Regarding Claim 2, Halter teaches (see Fig. 2e) the light detecting means comprising a two-dimensional area sensor for obtaining two-dimensional distribution information of said illuminating light (see Col. 4, lines 41-43).

Regarding Claim 5, Halter teaches the converging optical system comprising a telecentric optical system (see Fig. 8) for leading said illuminating light therethrough to said light detecting means.

Regarding Claim 7, Halter teaches (see Fig. 8) a half-silvered mirror (15) for leading the illuminating light emitted from said light source to said light-transmissive sheet-like body and leading the illuminating light reflected by said reflector to said light detecting means.

Regarding Claim 10, Halter teaches (see Fig. 2e) the light detecting means as a CCD camera (see Col. 4, lines 41-43).

Regarding Claim 11, Halter teaches (see Fig. 8) an apparatus for detecting a light-transmissive sheet-like body (G) comprising a light source unit (12) for emitting illuminating light, a reflector (R) for reflecting the illuminating light, image capturing means (11.1, 11.2, 11.3) (see Col. 4, lines 41-43) for detecting the illuminating light which is reflected by said reflector, a converging optical system (13.1, 13.2, 13.3) for leading the illuminating light reflected by said reflector to said light detecting means, and an image processor (see Col. 7, lines 4-5) for processing images captured by the image capturing means, wherein an edge (K) of the light-transmissive sheet-like body placed between the converging optical system and the reflector is detected based on a difference between two types of information, including information of said illuminating light which is led to said light detecting means through said

edge and another information of said illuminating light which bypasses said edge and is led to said light detecting means (see Fig. 3, (13.1) vs. (13.3)).

Regarding Claim 13, Halter teaches the image processor scanning (see Fig. 6) the images captured by the image capturing means in the direction in which the light-transmissive sheet-like body is fed, said image processor detects the image density (see Fig. 6), and said image processor determines the position of an edge of said image to be where the image density changes by a predetermined amount (see Col. 6, lines 17-21 and 59-64 and Col. 7, lines 11-19).

Regarding Claim 15, Halter teaches (see Fig. 8) the reflector reflecting illuminating light in a direction opposite to a direction in which the illuminating light comes to the reflector.

Regarding Claim 16, Halter teaches (see Fig. 8) an apparatus for detecting a light-transmissive sheet-like body (G) comprising a light source unit (12) for emitting illuminating light, light detecting means (11.1, 11.2, 11.3) for detecting the illuminating light, and a converging optical system (13.1, 13.2, 13.3) for leading the illuminating light to said light detecting means, wherein an edge (K) of the light-transmissive sheet-like body placed between said light source unit and said converging optical system is detected based on a difference between two types of information, including information of said illuminating light which is led to said light detecting means through said edge and another information of said illuminating light which bypasses said edge and is led to said light detecting means (see Fig. 3, (13.1) vs. (13.3)).

Regarding Claim 17, Halter teaches (see Fig. 8) the illuminating light passing through the light-transmissive sheet-like body twice before entering said light detecting means.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 3, 4, 12, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Halter in view of Anzai et al. US Patent No. 4,713,550.

Regarding Claims 3 and 4, Halter teaches the apparatus in Claim 1, according to the appropriate paragraph above. Regarding Claim 4, Halter teaches (see Fig. 8) a plurality of light detecting means (11.1, 11.2, 11.3) and processing means (see Col. 6, line 65 to Col. 7, line 5) for processing information obtained by said plurality of light detecting means. Halter does not teach a plurality of converging optical systems spaced from each other along the length of said light-transmissive sheet-like body or the processing means calculating the length of the light-transmissive sheet-like body. Anzai et al. teach (see Fig. 2) an apparatus for detecting a light-transmissive sheet-like body (see Col. 1, lines 35-39)) comprising a light source unit (LD_1-LD_4) for emitting illuminating light, a reflector (5) for reflecting the illuminating light, light detecting means (PD_0-PD_4) for detecting the illuminating light which is reflected by said reflector, wherein an edge of the light-transmissive sheet-like body placed between the converging optical system and the reflector is detected based on a difference between two types of information, including information of said illuminating light which is led to said light detecting means through said edge and another information of said illuminating light which bypasses said edge and is led to

said light detecting means (see Col. 1, lines 45-62 and Col. 5, lines 38-66), also including a plurality of light detecting means spaced from each other along the length of the light-transmissive sheet-like body for calculating the length of the light-transmissive sheet-like body. It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide multiple light detecting means spaced along the length of the light-transmissive sheet-like body as taught by Anzai et al. and provide a converging optical system for each light-detecting mean in the apparatus of Halter, to determine document length for scanning in addition to edge detection for scan dimensions.

Regarding Claims 12 and 14, Halter teaches the apparatus in Claims 11 and 13, according to the appropriate paragraph above. Halter also teaches the image processor determining the positions of edges of said images (see Col. 6, line 65 to Col. 7, line 5). Halter does not teach said image processor determining the length of the light-transmissive sheet-like body based on the positions of edges. Anzai et al. teach (see Fig. 2) an apparatus for detecting a light-transmissive sheet-like body (see Col. 1, lines 35-39)) comprising a light source unit (LD_1-LD_4) for emitting illuminating light, a reflector (5) for reflecting the illuminating light, light detecting means (PD_0-PD_4) for detecting the illuminating light which is reflected by said reflector, wherein an edge of the light-transmissive sheet-like body placed between the converging optical system and the reflector is detected based on a difference between two types of information, including information of said illuminating light which is led to said light detecting means through said edge and another information of said illuminating light which bypasses said edge and is led to said light detecting means (see Col. 1, lines 45-62 and Col. 5, lines 38-66), and a processor (10) determines (see Col. 1, lines 35-39) the length of the light-transmissive sheet-like body based on

the positions of edges. It would have been obvious to one of ordinary skill in the art at the time the invention was made to detect the length of the sheet-like body as taught by Anzai et al. in the apparatus of Halter, to determine document length for scanning in addition to edge detection for scan dimensions.

5. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Halter in view of Ushio et al. US Patent No. 6,489,624.

Halter teaches the apparatus in Claim 1, according to the appropriate paragraph above. Halter does not teach the light source and the converging optical system connected to each other by an optical fiber for leading the illuminating light source. Ushio et al. teach (see Fig. 13) an apparatus with a light source unit (connected to the end of (71)) for emitting illuminating light, reflector (76) for reflecting the illuminating light, light detecting means (82) for detecting the illuminating light reflected by the reflector, and a converging optical system (72, 74, 75, 77, 78, 79), wherein the light source and the converging optical system are connected to each other by an optical fiber (71) for leading the illuminating light. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the optical fiber as taught by Ushio et al. in the apparatus of Halter, to confine the light between the source and the converging optical system to maximize the emitted intensity onto the sheet-like body for improved detection.

6. Claims 6 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Halter.

Regarding Claim 6, Halter teaches the apparatus in Claim 5, according to the appropriate paragraph above. Halter also teaches the telecentric optical system comprising a condenser lens

(see Col. 4, lines 64-67) disposed on a side closer to said reflector. Halter does not teach an aperture member disposed at a focal point of said condenser lens on a side closer to said light detecting means. It is well known in the art to place an aperture member at a focal point of a lens, to maximally define the field of view of a light detector. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use an aperture member at a focal point of the lens in the apparatus of Anzai et al., to define the view of the light detecting means to maximally detect the light.

Regarding Claim 9, Halter teaches the apparatus in Claim 1, according to the appropriate paragraph above. Halter does not teach the light-transmissive sheet-like body made of a photosensitive material and sensitive to visible light and the illuminating light having a wavelength of at least 850 nm. It is well known in the art that photographic film are photosensitive materials and are sensitive to visible light, and an infrared light source (750nm to 1μm wavelength) is used in a detector device to prevent interference from the visible light spectrum. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a film sensitive to visible light as the light-transmissive sheet-like body and an illuminating light having a wavelength of at least 850nm, to use photographic film sensitive to visible light and an infrared light source of at least 850nm in the apparatus of Halter, to provide edge detection in a film camera or scanner without affecting the photosensitive material of the film media.

Response to Arguments

7. Applicant's arguments with respect to claims 1-17 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Tuhro et al. US Patent No. 6,151,117, teaches an optical sensor for detecting an edge using a telecentric optical system.

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen Yam whose telephone number is (703)306-3441. The examiner can normally be reached on Monday-Friday 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Porta can be reached on (703)308-4852. The fax phone numbers for the organization where this application or proceeding is assigned are (703)308-7724 for regular communications and (703)308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.

SY
July 16, 2003

DAVID PORTA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800